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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/503,990	02/14/2000	Mahmoud R. Sherif	2-7	7379

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EXAMINER

ZEWDU, MELESS NMN

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/503,990

Applicant(s)

SHERIF ET AL.

Examiner

Meless N Zewdu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 9-11 and 15 is/are rejected.
- 7) ☒ Claim(s) 3-8 and 12-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment (A)

1. This action is in response to the communication filed on 12/15/03.
2. Claims are pending in this action.
3. this action is final.

Claim Rejections - 35 USC § 103

I. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

II. Claims 1-2, 9-11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver, Jr. et al. (Weaver) (US 5,903,862) in view of Simon Haykin (Haykin), adaptive Filter Theory, third edition, 1996, pages 2-5 and 9-21.

As per claim 1: a method for communicating comprising the steps of:

receiving, a first encoded voice signal as a first set of voice signal parameters reads on '862 (see figs. 1, 2, 6 and 7; col. 3, lines 332-35).

directing, the first set of voice signal parameters to a first speech decoder to generate a voice signal reads on '862 (see figs. 1, 2, 6 and 7; col. 3, lines 42-46).

transmitting, the second set of voice signal parameters reads on '862 (see col. 4, lines 44-49). But, Weaver also discloses that one of the primary reasons that the tandem vocoders produce degraded quality audio signals is that modern vocoders use postfilters at the output of the speech decoding process (see col. 8, lines 48-58) and suggests that, as an alternative approach, a filter in a decoder can be modified by making the frequency response of the filter more gentle (see col. 9, lines 3-7, lines 54-63). But, Weaver does not explicitly teach about feeding the voice signal from the first speech decoder to an adaptive filter to produce a modified voice signal, the adaptive filter being operative to modify the spectrum of the voice signal from the first speech decoder so as to substantially compensate for spectral distortion introduced by an encoding and decoding of the voice signal, as claimed by applicant. However, in a related field of endeavor, Haykin teaches that "The ability of an adaptive filter to operate satisfactorily in an unknown environment and track time variations of input statistics make the adaptive filter a powerful device for signal processing and control applications. Indeed, adaptive filters have been successfully applied in such diverse fields as communications, radar, sonar, seismology, and biomedical engineering. Furthermore, Haykin also states "an input vector and a desired response are used to compute an estimation error, which is in turn used to control the values of a set of adjustable filter coefficients (see page 18, lines 11-24). According to the teaching, an adaptive filter can be used in an "unknown environment" which can include the environment between vocoders of a transmitter and a receiver (tandem vocoders), for controlling an output signal using the input and a desired response to compute an estimated error by which values of the adaptive filter coefficients are adjusted. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to replace Weaver's modified filter with Haykin's adaptive filter for the advantage of adaptively

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canceling noise and/or echo in a communication system (see page 21, table 1). Note: the specific location in a circuit, as to where to place an adaptive filter, is within the realm of a choice of design by one of skilled in the art.

As per claim 2: the method further comprising the steps of:

Modifying the spectrum of the voice signal from the first speech decoder using the adaptive filter which compensates for digital distortion which will occur when the encoded modified voice signal represented by the encoded set of voice signal parameters is decoded reads on '862 (see abstract; col. 2, lines 32-48). When modified as shown in the rejection of claim 1, the system would have an adaptive filter to compensate for signal lose caused by external or internal interference or/and noise.

As per claim 9: Claim 9 is rejected on the same ground and motivation as claim 1 since claim 9 is the apparatus claim that must carry out the method steps of claim 1.

As per claim 10: the wireless call connection wherein the adaptive filter modifies the magnitude of selective frequencies of the spectrum of the voice signal from the decoder reads on 'Haykin (see page 18, the sub-title, 7. Applications).

As per claim 11: the wireless call connection wherein the adaptive filter modifies the magnitude of selective frequencies of the spectrum of the voice signal from the decoder to compensate for digital distortion caused by encoding and decoding the modified voice signal reads on 'Haykin (see page 18, the sub-title, 7. Applications). According to the teaching, the input signal to the adaptive filter could be any digital signal transmitted in an environment that has noise or interference. Furthermore, it is obvious from the teaching that a magnitude of a signal is reduced by the amount of an estimated error.

As per claim 15: the wireless call connection wherein the adaptive filter increases the db of selective frequencies of the spectrum please refer to claim 1.

Response to Arguments

Applicant's arguments filed 12/15/03 have been fully considered but they are not persuasive. Arguments by applicant and corresponding responses by examiner are provided below.

Argument I: with regard to claims 1, 2, 9-11 and 15, applicant argues by saying that the Weaver, Jr. et al. reference (US 5,903,862) does not provide any teaching that could reasonably be construed to show or suggest the introduction of an adaptive filter between a first decoder and the following encoder.

Response I: as applicant noted, examiner does not assert that Weaver provides an adaptive filter.

Applicant's argument II: regarding the above same claims, applicant argues by saying that nothing in the teaching of Haykin can reasonably be construed to show or suggest that the use of an adaptive filter for making a spectral adjustment to the output of a decoder, much less the application of such an adaptive filter to effect a spectral correction in a tandemed encoder/decoder arrangement.

Response II: examiner respectfully disagrees with the argument. First, it is well known in the art of communication that filters are used for making spectral correction or selection. Second, Weaver provides tandemed encoder/decoder system or configuration between remote devices. Weaver, also teaches about modifying postfiltering within vocoders where a tandem configuration exists. The postfiltering

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within the vocoders is provided to prevent signal degradation due to the use of post filters (see abstract). But, Weaver does not mention about adaptive filter. This feature is provided by Haykin who suggests/teaches that an adaptive filter is a self designing which relies on a recursive algorithm (see page 3, lines 1-12). Furthermore, Haykin asserts that adaptive filters have been successfully applied in various signal processing applications (see page 18, Application). Haykin also provides exemplary drawings of adaptive filters (see page 19). Lastly, examiner believes that one of ordinary skill in the art can find enough information from the teaching Haykin to make use of adaptive filters for various applications, including adapting same to Weaver's tandemed vocoders.

Argument III: regarding the same claims, applicant further argues by saying that there is not motivation provided in either of the references to combine them as examiner did; and further asserts that examiner made use of the prohibited "hindsight" provided in applicant's disclosure to interpret the prior art.

Response III: examiner respectfully disagrees with the argument. First, examiner did not interpret the prior art references in a "hindsight" manner. Both, the teaching for use of adaptive filters and the motivation to combine the references are provided in Haykin's reference, as pointed out in the rejection of the claims. Examiner concurs that Haykin's reference is more of a theoretical nature. But, examiner also believes that one of ordinary skill in the art can find enough information from Haykin's reference about the use of adaptive filters and be motivated by their agility. For example, Haykins asserts that adptive filters are efficient and self designing based on a recursive algorithm (see

page 3, lines 1-11), hence suitable to be used in an unknown signal environment since it is a self learning system (see page 18, Application).

Allowable Subject Matter

III. Claims 3-8 and 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meless N Zewdu whose telephone number is (703) 306-5418. The examiner can normally be reached on 8:30 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (703) 308-5318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

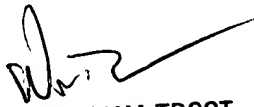
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Meless Zewdu

M. Z.

Examiner

16 February 2004.


WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600